3GPP TSG CN Plenary Meeting #18 **NP-020589**
4th – 6th December 2002 New Orleans, USA.

Source: TSG CN WG4

Title: Corrections on User-Authorization-Type AVP; IMS Cx/Dx-interface

Agenda item: 8.1

Document for: APPROVAL

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
29.228	016	1	N4-021514	Rel-5	Clarification of User-Authorization-Type AVP usage within the UAR	F	5.1.0
29.229	008	1	N4-021515	Rel-5	Clarification of REGISTRATION_AND_CAPABILITIES value	F	5.1.0

3GPP TSG CN WG4 Meeting #17 **N4-021514**
Bangkok, THAILAND, 11th – 15th November 2002

CR-Form-v7

CHANGE REQUEST

⌘ **29.228** **CR** **016** ⌘ **rev** **1** ⌘ Current version: **5.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Clarification of User-Authorization-Type AVP usage within the UAR
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	13/11/2002
Category:	⌘	**F**
Release:	⌘	Rel-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	During the discussion on the LS response N4-021320 to SA2 (CN4#16), it was recognised that the usage of User-Authorization-Type AVP is not completely defined. Especially the usage of REGISTRATION_AND_CAPABILITIES value have to be specified.
Summary of change:	⌘	The usage of REGISTRATION_AND_CAPABILITIES value is defined.
Consequences if not approved:	⌘	Incomplete specification will cause interoperability problems.

Clauses affected:	⌘	6.1.1

Other specs affected:	⌘	Y	N		⌘	
		X		Other core specifications		29.229-008
			X	Test specifications		
			X	O&M Specifications		

Other comments:	⌘	

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6.1.1 User registration status query

This procedure is used between the I-CSCF and the HSS during SIP registrations. The procedure is invoked by the I-CSCF, corresponds to the combination of the functional level operations Cx-Query and Cx-Select-Pull (see 3GPP TS 23.228 [1]) and is used:

- To authorize the registration of the user, checking multimedia subsystem access permissions and roaming agreements.
- To perform a first security check, determining whether the public and private identities sent in the message belong to the same user.
- To obtain either the S-CSCF where the user is registered or unregistered (i.e. registered as a consequence of a terminating call or there is a S-CSCF keeping the user profile stored), or the list of capabilities that the S-CSCF has to support.

This procedure is mapped to the commands User-Authorization-Request/Answer in the Diameter application specified in 3GPP TS 29.229 [5]. Tables 6.1.1.1 and 6.1.1.2 detail the involved information elements.

Table 6.1.1.1 : User registration status query

Information element name	Mapping to Diameter AVP	Cat.	Description
User Identity (See 7.2)	Public-Identity	M	User public identity to be registered
Visited Network Identifier (See 7.1)	Visited-Network-Identifier	M	Identifier that allows the home network to identify the visited network
Type of Authorization (See 7.14)	User-Authorization-Type	C	Type of authorization requested by the I-CSCF. If the request corresponds to a de-registration, i.e. Expires field in the REGISTER method is equal to zero, this AVP shall be present in the command and the value shall be set to DE-REGISTRATION. If the request corresponds to an initial registration or a re-registration, i.e. Expires field in the REGISTER method is not equal to zero then this AVP may ~~not~~ be ~~present~~ absent ~~in~~ from the command. If present its value shall be set to REGISTRATION. If the request corresponds to an initial registration or a re-registration, ~~-~~and the I-CSCF explicitly queries the S-CSCF capabilities, then this AVP shall be present in the command and the value shall be set to REGISTRATION_AND_CAPABILITIES. The I-CSCF shall use this value when the user's current S-CSCF, which is stored in the HSS, cannot be contacted and a new S-CSCF ~~shall~~needs to be selected.
Private User Identity (See 7.3)	User-Name	M	User private identity
Routing Information (See 7.13)	Destination-Host, Destination-Realm	C	If the I-CSCF knows HSS name Destination-Host AVP shall be present in the command. Otherwise, only Destination-Realm AVP shall be present and the command shall be routed to the next Diameter node, e.g. SLF, based on the Diameter routing table in the I-CSCF.

Table 6.1.1.2 : User registration status response

Information element name	Mapping to Diameter	Cat.	Description

	AVP		
Result (See 7.6)	Result-Code / Vendor-Specific-Result	M	Result of the operation
S-CSCF capabilities (See 7.5)	Server-Capabilities	O	Required capabilities of the S-CSCF to be assigned to the user.
S-CSCF Name (See 7.4)	Server-Name	C	Name of the assigned S-CSCF.

6.1.1.1 Detailed behaviour

The HSS shall, in the following order (in case of an error in any of the steps the HSS shall stop processing and return the corresponding error code, see 3GPP TS 29.229 [5]):

1. Check that the user exists in the HSS. If not Vendor-Specific-Result shall be set to DIAMETER_ERROR_USER_UNKNOWN.

2. Check that the private and public identities received in the request belong to the same user. If not Vendor-Specific-Result shall be set to DIAMETER_ERROR _IDENTITIES_DONT_MATCH.

3. Check the User-Authorization-Type received in the request:

   + If it is REGISTRATION or if User-Authorization-Type is absent from the request, the HSS shall check that the user is allowed to roam in the visited network (if not Vendor-Specific-Result shall be set to DIAMETER_ERROR _ROAMING_NOT_ALLOWED) and authorized to register (if not Result-Code shall be set to DIAMETER_AUTHORIZATION_REJECTED). Continue to step 4.

   + If it is DE_REGISTRATION, the HSS may not perform any check regarding roaming. Continue to step 4.

   + If it is REGISTRATION_AND_CAPABILITIES, the HSS shall check that the user is allowed to roam in the visited network (if not Vendor-Specific-Result shall be set to DIAMETER_ERROR _ROAMING_NOT_ALLOWED) and authorized to register (if not Result-Code shall be set to DIAMETER_AUTHORIZATION_REJECTED). The HSS shall return the list of S-CSCF capabilities, which enables the I-CSCF to select an S-CSCF. The returned capabilities must satisfy the most restrictive service profile of the user. The list of capabilities may be empty, to indicate to the I-CSCF that it can select any available S-CSCF. Result-Code shall be set to DIAMETER_SUCCESS. The HSS shall not return any S-CSCF name.

4. Check the state of the public identity received in the request:

   + If it is registered or unregistered (i.e. registered as a consequence of a terminating call or there is a S-CSCF keeping the user profile stored), the HSS shall return the stored S-CSCF name and Vendor-Specific-Result set to DIAMETER_SUBSEQUENT_REGISTRATION. The HSS shall not return any S-CSCF capabilities.

   + If it is not registered yet, the HSS shall check if at least there is at least one identity of the user with an S-CSCF name assigned.

      -- If so the HSS shall check the value of User-Authorization-Type received in the request:

      -- If it is equal to DE_REGISTRATION, then the HSS shall not return any S-CSCF name or S-CSCF capabilities. The HSS shall set the Vendor-Specific-Result to DIAMETER_ERROR_IDENTITY_NOT_REGISTERED in the response.

      -- If it is different from DE_REGISTRATION, then the HSS shall return the S-CSCF name assigned for the user and Vendor-Specific-Result set to DIAMETER_SUBSEQUENT_REGISTRATION. The HSS shall not return any S-CSCF capabilities

If the HSS cannot fulfil received request, e.g. due to database error, it shall set Result-Code to DIAMETER_UNABLE_TO_COMPLY. No S-CSCF name or S-CSCF capabilities shall be present in the response.

3GPP TSG CN WG4 Meeting #17 **N4-021515**
Bangkok, THAILAND, 11th – 15th November 2002

CR-Form-v7

CHANGE REQUEST

⌘ **29.229** **CR** **008** ⌘ **rev** **1** ⌘ Current version: **5.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network ☒

Title:	⌘	Clarification of REGISTRATION_AND_CAPABILITIES value
Source:	⌘	CN4
Work item code:	⌘	IMS-CCR
Date:	⌘	13/11/2002
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Summary of change:	⌘	The definition of value REGISTRATION_AND_CAPABILITIES is improved.
Consequences if not approved:	⌘	Incomplete specification.

Clauses affected:	⌘	6.3.24			
Other specs affected:	⌘	**Y**	**N**		
		X		Other core specifications	⌘ 29.228-016
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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6.3.24 User-Authorization-Type AVP

The User-Authorization-Type AVP (AVP code 24) is of type Enumerated, and indicates the type of user authorization being performed in a User Authorization operation, i.e. UAR command. The following values are defined:

REGISTRATION (0)

This value is used in case of the initial registration or re-registration. I-CSCF determines this from the Expires field in the SIP REGISTER method if it is not equal to zero.

This is the default value.

DE_REGISTRATION (1)

This value is used in case of the de-registration. I-CSCF determines this from the Expires field in the SIP REGISTER method if it is equal to zero.

REGISTRATION_AND_CAPABILITIES (3)

This value is used in case of initial registration or re-registration and when the I-CSCF explicitly requests S-CSCF capability information from the HSS. The I-CSCF shall use this value when the user's current S-CSCF, which is stored in the HSS, cannot be contacted and a new S-CSCF ~~shall~~needs to be selected.